



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,624	11/26/2003	Charles J. Koehler	65858-0029	1146

10291 7590 05/02/2005

RADER, FISHMAN & GRAUER PLLC  
39533 WOODWARD AVENUE  
SUITE 140  
BLOOMFIELD HILLS, MI 48304-0610

EXAMINER


BARBEE, MANUEL L

ART UNIT	PAPER NUMBER
----------	--------------

2857

DATE MAILED: 05/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/723,624	Applicant(s) KOEHLER ET AL	
	Examiner Manuel L. Barbee	Art Unit 2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 October 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-120 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-120 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/26/03</u> | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Specification***

1. The attempt to incorporate subject matter into this application by reference to a hyperlink or URL as found in paragraph 83 is ineffective because the attempt to incorporate subject matter by reference to a hyperlink and/or other forms of browser-executable code is considered to be an improper incorporation by reference (See MPEP 608.01, Section VII and MPEP 608.01(p)).
2. The incorporation by reference will not be effective until correction is made to comply with 37 CFR 1.57(b), (c), or (d). If the incorporated material is relied upon to meet any outstanding objection, rejection, or other requirement imposed by the Office, the correction must be made within any time period set by the Office for responding to the objection, rejection, or other requirement for the incorporation to be effective. Compliance will not be held in abeyance with respect to responding to the objection, rejection, or other requirement for the incorporation to be effective. In no case may the correction be made later than the close of prosecution as defined in 37 CFR 1.114(b), or abandonment of the application, whichever occurs earlier.

Any correction inserting material by amendment that was previously incorporated by reference must be accompanied by a statement that the material being inserted is the material incorporated by reference and the amendment contains no new matter. 37 CFR 1.57(f).

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-63, 92, 94-97 and 103-120 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims do not clearly distinguish between the substance used to develop the prediction equation and the substance being monitored. For example, claim 1 is directed to a method of monitoring a substance and recites a step of disposing an electrode in the substance. Claim 8 recites a prediction equation that is created using known properties of the substance in which an electrode is disposed. Claim 9 recites limitations for using the prediction equation to predict at least one property of a second substance. It would appear that the second substance is the substance being monitored. Similar ambiguity is found in other independent claims 14, 30 and 44 and in dependent claims 92, 94-97 and 103-107. The claims should make clear the difference between the substance being monitored and the substance with known properties being used to create the prediction equation and that the second substance is the substance being monitored.

5. Claims 64-120 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Art Unit: 2857

6. Claims 64-120 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: the electrode mechanism disposed in the substance for generating measurements or data over a range of frequencies. Claims 64 and 84 each recite generating a plurality of plots of spectra over a range of frequencies. Claim 108 recites generating a plurality of Nyquist plots associated with a sample of the substance. Generation of these plots is not arbitrary. The invention as described in the specification makes clear that these plots are generated using an electrode disposed in the fluid being used to generate the prediction equation used to monitor or analyze a fluid with an unknown condition (pars. 6-9).

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1, 2, 14-16, 30, 31 and 44-53 are rejected under 35 U.S.C. 102(e) as being anticipated by Lvovich et al. (US Patent No. 6,577,112).

With regard to disposing an electrode in a substance, as shown in claims 1, 14, 30 and 44, Lvovich et al. teach immersing an electrode in a fluid being monitored online (col. 6, lines 20-39). With regard to exciting the electrode sequentially with a specified number of alternating voltages at difference frequencies in a range of frequencies, as shown in claims 1, 14, 30 and 44, Lvovich et al. teach outputting a plurality of voltages at different frequencies (col. 6, line 66 - col. 7, line 65). With regard to performing at least one calculation to generate at least one datum associated with each frequency, as shown in claims 1, 14, 30 and 44, Lvovich et al. teach calculating impedance using the applied voltage and the measured current (col. 6, lines 53-65, col. 7, line 66 - col. 8, line 13). With regard to creating a graph comprising x-values related to the specified number and creating a combined plot by placing a plurality of plots generated from the plurality of spectra on the graph, as shown in claim 1, Lvovich et al. teach generating a graph with a plurality of Nyquist plots from different voltages where imaginary impedance is related to the frequency (col. 7, lines 45 - col. 9, line 17; Figs. 2 and 3).

With regard to repeating the steps to create a plurality of combined plots, as shown in claim 2, Lvovich et al. teach generating graphs repeatedly sweeping the frequency range (col. 6, line 66 - col. 7, line 34). With regard to receiving input from a current sensor, as shown in claims 15 and 46, Lvovich et al. teach a current sensor (col. 6, lines 53-65). With regard to at least one value for resistive impedance and at least one value for reactive impedance, as shown in claims 16, 31 and 45, Lvovich et al. teach measuring generating a Nyquist plot showing real and imaginary impedance.

With regard to wherein the range of frequencies is between 75 kilohertz and .0075 hertz, as shown in claim 47, Lvovich et al. teach a range of frequencies between 100 MHz and .001 hertz (col. 7, lines 45-48). With regard to creating a graph comprising at least one x-value related to the specified number and a combined plot, as shown in claim 48, Lvovich et al. teach plotting imaginary impedance, which is related to the frequency and combining plots from different voltages (col. 7, line 66 - col. 8, line 13; Figs. 2 and 3). With regard to at least one datum from a first spectra and a at least one datum from a second spectra each associated with at least one x-value, as shown in claim 49, Lvovich et al. teach plotting more than one spectra each with imaginary impedance values associated with the frequency (Figs. 2 and 3). With regard to the first spectra comprising values for resistive impedance and the second spectra comprising determined values for reactive impedance, as shown in claim 50, Lvovich et al teach plots that contain real and imaginary values of impedance (Figs. 2 and 3).

With regard to a Nyquist plot, as shown in claim 51, Lvovich et al. teach Nyquist plots (Figs. 2 and 3). With regard to at least one datum from the bulk region of the Nyquist plot and at least one datum from the interfacial region of the Nyquist plot, as shown in claim 52, and a plurality of combined plots, as shown in claim 53, Lvovich et al. teach a Nyquist plot with real and imaginary values of impedance (Figs. 2 and 3).

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2857

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 17-19, 25-29, 32, 33 and 39-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lvovich et al. in view of Polczynski et al. (US Patent No. 6,380,746).

Lvovich et al. teach all the limitations of claims 14 upon which claims 17-19 and 25-29 depend and claim 30 upon which claims 32, 33 and 39-43 depend. Further, with regard to a remaining useful life indication and an end of life indication, as shown in claims 28, 29, 42 and 43, Lvovich et al. teach analyzing fluid deterioration or degradation (col. 11, line 43 - col. 12, line 10).

Lvovich et al. do not teach an information library in the computing device with at least one prediction equation, as shown in claims 17-19, 32 and 33. Lvovich et al. do not teach predicting at least one property value using at least one baseline value, as shown in claims 25-27 and 39-41. Polczynski et al. teach determining the condition of a fluid using stored values of the differential impedance (Abstract, col. 5, lines 5-30; Fig. 9). The stored values are an information library of baseline values used to predict the condition of the fluid. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the fluid condition monitor, as taught by Lvovich et al., to include stored values, as taught by Polczynski et al., because then fluid condition would have been efficiently looked up in real time. (col. 1, lines 5-25).

11. Claims 64, 65, 68, 69 and 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lvovich et al.



With regard to generating a plurality of spectra over a range of frequencies, as shown in claim 64, Lvovich et al. teach generating a plurality of Nyquist plots (Figs. 2 and 3). Lvovich et al. do not teach creating a second plot that comprises the plurality of first plots by sequentially assigning x-values to selected frequencies in the plurality of first plots, as shown in claim 64. The Examiner takes official notice that it is well known to plot a spectra and then to change the scale of the plot so that more information is shown on the screen or so that one part of the plot can be seen closer. Changing the scale of a plot shown on a screen would require assigning x-values to create the second plot using a different scale. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the fluid condition monitor, as taught by Lvovich et al. to include changing the scale of the plot, because then the more options would have been available for viewing the plot.

With regard to generating a plurality of plots, as shown in claim 65, Lvovich et al. teach generating a plurality of plots col. 7, lines 61-65; Figs. 2 and 3). With regard to a Nyquist plot with data from the bulk region and the interfacial region, as shown in claims 68 and 69, Lvovich et al. teach a Nyquist plot showing the real and imaginary impedance. With regard to wherein the range of frequencies is between 75 kilohertz and .0075 hertz, as shown in claim 72, Lvovich et al. teach a range of frequencies between 100 MHz and .001 hertz (col. 7, lines 45-48).

### ***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Art Unit: 2857

Gergely et al. (US Patent No. 5,049,738) teach laser-enhanced oil correlation system.

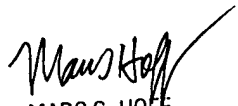
Wright et al. (US Patent No. 5,710,713) teach creating spectral libraries.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Manuel L. Barbee whose telephone number is 571-272-2212. The examiner can normally be reached on Monday-Friday from 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on 571-272-2216. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MIb  
April 20, 2005

  
MARC S. HOFF  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800